

Populations Trends and Patterns in Newly Restored Marshes in the Napa River System

#0050

Technical Panel Review

Proposal Name: Populations Trends and Patterns in Newly Restored Marshes in the Napa River System

Applicant Organization: Coastal Conservancy, California State

Principal Lead Investigator(s):
Takekawa, John

Amount Requested: \$471,492

TSP Panel Summary of Findings:

While the majority of the external reviewers rated this as inadequate, the panel believes that the fundamental nature of the results of this study would be moderately relevant. This is a well-qualified research team. Further, the BACI approach is a useful analytical framework to examine effects of restoration, and existing data suggest that this approach is appropriate.

However, the details of how the BACI approach would be implemented are lacking, and there is not a strong hypothesis. This is primarily a monitoring proposal, and as such may not be appropriate for this PSP. In addition, methods proposed to sample biota somewhat differ among areas, which may confound comparisons. The fish sampling methods were not yet established and may not be appropriate for testing in a marsh (i.e. gill netting). Proponents should explain the thinking behind the methods. Simple examinations of densities will really not address mechanisms of population trends, or notions relating to the "benefit" of habitat restoration on a wider spatial/temporal scale. Finally, the panel questioned the breakdown of costs between the sampling consultants. The panel noted that this proposal was also submitted to the ERP PSP and was rejected, although it was not clear if the proposal had been modified.

Relevance to PSP Topic Areas:

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Technical Panel Review

Moderate

TSP Technical Rating:
Sufficient

TSP Funding Recommendation:
Do Not Fund

TSP Amount Recommended: \$0

Conditions:

External Technical Review #1

Proposal Title: Populations Trends and Patterns in Newly Restored Marshes in the Napa River System

Proposal Number: 0050

Proposal Applicant: Coastal Conservancy, California State

Purpose

Comments	The goal of the project is to extend monitoring of salt pond restoration in Napa, incorporating already restored and to-be restored ponds with a control site at Fagan. The goals are well described and the study is put in the context of previous work. The hypotheses, however, seems to reach beyond what the study delivers. This is especially true where the hypotheses include, as they should, a proposed mechanism by which the restoration benefits the species or group, e.g., nesting, food sources. There is also reference to increases in population (the scale of which is not defined) and vague reference to improved management which is not clearly identified (and thus makes the hypothesis untestable). The information generated would likely be of value in understanding the habitat transitions associated with pond restoration and this is especially important given the expected scale of salt pond restoration within the Bay-Delta.
Rating	Sufficient

Background

Comments	The CM seems to miss the point. Most of the CM is devoted to physical changes occurring during salt pond restoration. This proposal is essentially about the biological response and really no information on how or why birds and fish might respond to these physical changes is
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External Technical Review #1

	given. There is no CM to really support the work here, except the geomorphic change at Fagan.
Rating	Inadequate

Approach

Comments	<p>The management of the project is clear and appropriate. The data management seems to be in hand, and the Takekawa has a good record of communicating findings. The main problem with the field sampling is the link to the hypotheses. While Task 2A includes some mention of foraging and behavior (presumably including nesting), Task 3A has no mention at all of food sources. The hypothesis states that food sources is the mechanism by which benefit to fishes is manifest, yet there is no mention of gut contents work, prey surveys or any such. The fish sampling methodology seems poorly thought out - if the method will depend upon sampling feasibility how are we to be sure that it will be at all feasible. If methods are different among sites, as that statement suggests, then how will they be compared as many of the techniques do not readily produce density estimates. This has been such a huge issue in nekton sampling that it is disappointing not to see it discussed. The Fagan slough geomorphology work seems to be poorly tied into the rest of the study.</p>
Rating	Inadequate

Feasibility

Comments	<p>Given the reservations indicated above, the bird component seems very feasible. The fish component seems less thorough in approach. There is also no mention of permitting for fish sampling - maybe this is not required for catch and release sampling (although not all fish are released). This may be a potential constraint on feasibility.</p>
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External Technical Review #1

Rating	Sufficient
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Budget

Comments	The cost of the project seems very reasonable.
Rating	Sufficient

Relevance To CALFED

Comments	This seems to me to be more properly funded by ERP, or under monitoring. While it does deal with issues mentioned in the PSP, e.g. Trends in populations, and habitat changes, the specific tie to restoration already underway seems to stretch the focus of the Science Program. The provision of funds for monitoring has always been a problem for CBDA projects. The BACI approach here could be really useful to resource managers. The proposal does not seek to use the data in modeling which is unfortunate as some avian habitat models have been developed for the Bay (e.g., by PRBO) which could well be amplified with data sets such as these.
Rating	Sufficient

Qualifications

Comments	Takekawa and the Conservancy have an excellent record. The fisheries team is less well established scientifically and some of the comments above on their approach may reflect a more 'contractural' as opposed to 'scientific' view of data collection.
Rating	Sufficient

Overall Evaluation Summary Rating

Comments	This project has strengths and weaknesses but builds on an opportunity to conduct BACI analysis on forthcoming restoration. Fundamentally though, it is monitoring.
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External Technical Review #1

Rating	Inadequate
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External Technical Review #2

Proposal Title: Populations Trends and Patterns in Newly Restored Marshes in the Napa River System

Proposal Number: 0050

Proposal Applicant: Coastal Conservancy, California State

Purpose

Comments	<p>The general objective of this proposal appears to be to continue the post-restoration monitoring of the former North Bay salt ponds as they return to tidal action. However, the hypotheses given in Section 2.3 are a better, more precise reading of this proposal's objectives. In brief, the two main hypotheses given state that restoration of tidal action will benefit several named targeted species and that maintaining a mix of ponds and tidal marshes will benefit the entire mix of species. Neither of these hypotheses can be easily falsified because they are stated so generally and are highly likely to be verified by the data. Having more tidal marshes certainly can't hurt the tidal marsh species listed; at the least they would have little or no value. Conversely, maintaining a mix of habitats minimizes the tradeoff of pond habitat loss for avian species, even if it limits the potential gain for marsh species. Two examples will illustrate the limited utility of these hypotheses. Hypothesis 1c stipulates that increased marsh habitat will provide more foraging and nesting habitat to several special-status birds. Certainly, more habitat can only increase their populations, or at worst have no effect for reasons that may or may not affect the stipulated reasons. Providing more marsh will necessarily increase potential habitat for marsh species. Hypothesis 2a states that birds will redistribute themselves from sites lost to tidal marsh restoration. This hypothesis can only be proven false</p>
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External Technical Review #2

	<p>if birds using the ponds do not move elsewhere. But birds using the ponds for feeding or wind shelter will have to move to the remaining ponds or to other habitats in different areas, which seems inevitably true -- they are unlikely to stick completely with the developing tidal marsh. This is at best weak verification and is not very interesting. Similar reasoning can be applied to all the remaining hypotheses. Without greater likelihood of falsification or meaningful acceptance, these hypotheses are essentially worthless in their present form. This proposal seems to be reducible to continuing monitoring with few more interesting ideas, even with the inherent BACI design.</p>
Rating	Inadequate

Background

Comments	<p>The conceptual model given is well established by prior research. Opening the ponds to tidal action has been done elsewhere in California and within the San Francisco Bay area and has been tracked in other studies. These studies establish expectations, which are explained reasonably in the present proposal. However, the conceptual model is best justified in terms of the hydrology, sediments and vegetation changes stipulated. Extending the model to marsh users is less certain, although there are qualitative indicators that more marsh should translate into benefits for special-status species. Perhaps the best examples are Sacramento splittail, while Delta smelt and clapper rails may be the least understood of the special status species in the estuary. The stark contrast between pond and marsh habitats underpins the conceptual model and is a reasonable basis for expecting some major changes. However, the conceptual model is far too broad to be useful in setting up the scientific tasks in the proposal. Like the hypotheses given, the background is too general to set up any but the broadest and essentially trivial hypotheses. More interesting hypotheses may have allowed the authors to</p>
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External Technical Review #2

	develop a more specific and more interesting background.
Rating	Sufficient

Approach

Comments	<p>The entire study is based on a BACI (before-after-control-impact) design, with the remaining ponds as the "before controls" and the breached diked ponds as the "after-impact" sites. This is potentially a powerful design, if the number of replicates is adequate and the interactions between sites minimal. I do not know what to expect here, but the authors should. Yet the discussion of BACI as applied to the salt pond sites is minimally specific, where if it were more explicit, could have addressed these real issues more meaningfully. The proposed work plan is largely a continuation of routine population counts for birds and fish as the restoration project continues towards a marsh equilibrium. There will also be elevation profiles in the aggrading marshes and at Fagan Slough in order to measure changes in geomorphology. There is adequate evidence that changes in fish and bird diversity and numbers will be obtained throughout the project period. I doubt that any of the hypotheses stipulated will be meaningfully tested. The new data may prove to be most useful in refining general hypotheses to more specific ones or revealing new hypotheses altogether. I do not understand why the effort is concentrated largely on fish and birds when sedimentation and vegetation establishment are clearly more important concerns.</p>
Rating	Inadequate

Feasibility

Comments	<p>The project is feasible but uninteresting. Granted that monitoring must continue, and that bird and fish surveys will likely be adequate to document changes in these elements, the linkage back to geomorphology and</p>
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External Technical Review #2

	the vegetation is too weak to permit even rudimentary assessment of changes in populations of the bird and fish species present. The main problem is that the hypotheses are not very meaningful. Coordination and inclusion with existing data sources is promised, and should have been more fully specified and if possible done as part of this proposal, instead of leaving so much in unspecified and very general terms.
Rating	Sufficient

Budget

Comments	The budget is reasonable for a project of this size, but bear in mind there are many potential collaborators whose budgetary requests are not included with this proposal. I would estimate that the true cost of the project is much larger, if not to CALFED. In this sense, it is a bargain to this funding agency.
Rating	Sufficient

Relevance To CALFED

Comments	This is a project that is totally relevant to the Ecosystem Restoration goals of CALFED. It is unfortunate that the authors did not develop the project in greater detail when they had the chance to do so. As it has been developed, I see the project as doing some necessary work in the form of an intermediate step when they could have done much more.
Rating	Above Average

Qualifications

Comments	The lead investigator is well-qualified with waterfowl and shorebirds. I am not aware of his credentials with marsh birds. It is less clear who is actually doing the fish research. I trust these elements have adequate technical coverage.
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External Technical Review #2

Rating	Sufficient
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Overall Evaluation Summary Rating

Comments	<p>If CALFED is satisfied with a continuing monitoring program, and treats the stated hypotheses as not relevant to this program or its funding, my rating would be "sufficient as a monitoring program". However, if CALFED expects meaningful hypotheses and sufficient detail to test them (or to insure they can be tested), my rating would fall to "inadequate". I was disappointed with this proposal. Given the amount of work that has been done in the project area, this is a weak proposal that could have been so much more useful.</p>
Rating	Inadequate

External Technical Review #3

Proposal Title: Populations Trends and Patterns in Newly Restored Marshes in the Napa River System

Proposal Number: 0050

Proposal Applicant: Coastal Conservancy, California State

Purpose

Comments	I would answer all six questions in the affirmative. With possible infrastructure expenditures (Prop. 84, etc.) likely to be approved this year by the California electorate and with the potential for climate-change enhanced impacts on Bay-Delta hydrology, monitoring of such restoration projects is all the more timely. Results are likely to provide one of the most scientifically rigorous analyses of restoration projects in the SFB area, analyses which will inform the Joiunt venture efforts on behalf of migratory, resident, and wintering bird populations and listed fish and mammal species.
Rating	Superior

Background

Comments	The team which has been assembled for this project has composed a clear and compelling conceptual model for this proposal. That model provides a clear basis for the work which has been proposed along with thorough background documentation to convey the "state-of-the-science" that leads up to this proposal.
Rating	Above Average

Approach

Comments	The approach was clearly crafted by a team of experts with thorough experience in collaborative research. Task assignments are clearly described and QC on the data collection, data analysis, and ultimate plans for dissemination of significant results are clearly spelled out in Table 3-1.
Rating	Superior

Feasibility

Comments	The approach is fully documented, and based on my limited experience in the field of fisheries biology, I would say that the approach is technically feasible as per aquatic vertebrates. Certainly, the extensive experience of the team's avian biologists and the thoughtful survey approach yields a feasible set of field techniques which should generate meaningful monitoring data. There is a good fit between the scale of the project and the authors' capabilities, and the project objectives.
Rating	Above Average

Budget

Comments	The budget component of this study is well thought out with a rigorous complement of in-kind contribution from participating entities, thorough evaluation of overhead control, and detailed consideration of all likely costs.
Rating	Above Average

Relevance To CALFED

Comments	If CALFED is interested in evaluating ecosystem-level response to a changing environment, this proposal
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External Technical Review #3

	clearly will address that priority (for the target species being evaluated by the BACI monitoring approach). I feel quite certain that resource managers and policy makers will be able to make generous applications of the results generated by this work.
Rating	Above Average

Qualifications

Comments	The authors have great breadth and depth of pertinent experience. This appears to be the kind of team which, based on their qualifications, past & current studies, and existing publications will operate with the kind of synergy that should ensure a good outcome. The combination of state, federal, and private collaborators should ensure some checks and balances on infrastructure and logistical support.
Rating	Above Average

Overall Evaluation Summary Rating

Comments	I award an overall rating of Above Average for this proposal. If the application text were flawless (there are a few grammatical/spelling/ punctuation errors), I would probably have boosted a few more categories up to the superior rating. Very professionally done; an impressive presentation.
Rating	Above Average